

Amendment to the Claims:

Please amend the claims as follows:

This listing of claims will replace all prior versions, and listing, of claims in the application:

Listing of Claims:

Claim 1 (currently amended): A method for making a recombinant polypeptide having a phytase activity comprising:

(i) providing (a) a nucleic acid isolated from a wild type [[an]] E. coli [[bacteria]] bacterium encoding a polypeptide having a phytase activity; (b) a non-natural or synthetic form of the nucleic acid of (a); or (c) a nucleic acid encoding a polypeptide having the amino acid sequence of SEQ ID NO:10; and

(ii) expressing the nucleic acid of (i) in a yeast cell under conditions which allow expression of the recombinant polypeptide having a phytase activity ~~enzyme~~ in the yeast cell.

Claim 2 (previously presented): The method of claim 1 wherein the nucleic acid expressed in the yeast comprises a non-natural or synthetically generated nucleic acid.

Claim 3 (withdrawn - currently amended): The method of claim 1 wherein the nucleic acid isolated from the wild type [[an]] E. coli [[bacteria]] bacterium has the sequence of SEQ ID NO:1, or wherein the polypeptide encoded by the nucleic acid isolated from the wild type [[an]] E. coli [[bacteria]] bacterium has the amino acid sequence of SEQ ID NO:2.

Claims 4 and 5 (canceled)

Claim 6 (withdrawn - currently amended): The method of claim 1 [[3]], further comprising isolating the expressed recombinant polypeptide having a phytase activity.

Claims 7 to 10 (canceled)

Claim 11 (previously presented): The method of claim 1, wherein the yeast cell is a *Saccharomyces* sp., a *Schwanniomyces* sp., a *Pichia* sp. yeast cell, a *Hansenula* sp. yeast cell, a *Candida* yeast cell or a *Torulopsis* sp. yeast cell.

Claim 12 (original): The method of claim 11, wherein the yeast cell is a *Saccharomyces cerevisiae*, a *Schizosaccharomyces pombe*, a *Schwanniomyces occidentalis*, a *Pichia pastoris* or a *Hansenula polymorpha*.

Claims 13 to 19 (canceled)

Claim 20 (previously presented): The method of claim 1, wherein the nucleic acid is contained in a cloning vehicle.

Claim 21 (previously presented): The method of claim 1, wherein the nucleic acid is contained in an expression cassette, a vector, a plasmid, a phage, a phagemid, a cosmid, a fosmid, a bacteriophage or an artificial chromosome.

Claim 22 (previously presented): The method of claim 1, wherein the polypeptide further comprises a signal peptide and the polypeptide is secreted by the cell.

Claim 23 to 49 (canceled)

Claim 50 (currently amended): The method of claim 1, wherein the nucleic acid encoding the amino acid sequence of SEQ ID NO:10 comprises ~~isolated from an *E. coli* bacteria is modified to have the sequence of SEQ ID NO:9, or is modified to encode the polypeptide having the amino acid sequence of SEQ ID NO:10.~~

Claim 51 (currently amended): A method for making a recombinant phytase comprising:

(a) providing a phytase-encoding nucleic acid operatively linked to a promoter, wherein the nucleic acid comprises (i) a ~~sequence~~ nucleic acid isolated from a wild type ~~[[an]]~~ *E. coli* bacterium; (ii) a non-natural or synthetic form of the nucleic acid of (i); or (iii) a nucleic acid encoding a polypeptide having the amino acid sequence of SEQ ID NO:10; and

(b) expressing the nucleic acid of (a) in a yeast cell under conditions which allow expression of the recombinant phytase in the yeast cell.

Claim 52 (currently amended): The method of claim 51, wherein the phytase-encoding nucleic acid encoding the amino acid sequence of SEQ ID NO:10 has the sequence of SEQ ID NO:9, or the sequence of (i) encodes the amino acid sequence of SEQ ID NO:10, or has the sequence of SEQ ID NO:1, or encodes the amino acid sequence of SEQ ID NO:2.

Claim 53 (currently amended): A method for making a recombinant phytase comprising:

(a) providing a phytase-encoding nucleic acid operatively linked to a promoter, wherein phytase comprises a homologous signal sequence or comprises a heterologous signal sequence in place of the homologous signal sequence, and the nucleic acid comprises (i) a ~~sequence~~ nucleic acid isolated from a wild type ~~[[an]]~~ *E. coli* bacterium; (ii) a non-natural or synthetic form of the nucleic acid of (i); or (iii) a nucleic acid encoding a polypeptide having the amino acid sequence of SEQ ID NO:10; and

(b) expressing the nucleic acid in a yeast cell under conditions which allow expression of the recombinant phytase in the yeast cell.

Claim 54 (currently amended): The method of claim 53, wherein the homologous signal sequence or the heterologous signal sequence (~~signal peptide~~) comprises a secretory signal ~~peptide~~ sequence.

Claim 55 (currently amended): A method for making a recombinant phytase comprising:

(a) providing a phytase-encoding nucleic acid operatively linked to a promoter, wherein the nucleic acid encodes a phytase comprising a homologous signal sequence or the nucleic acid encodes a phytase comprising a heterologous signal sequence in place of the homologous signal sequence, or the nucleic acid further comprises a sequence encoding an amino acid sequence comprising an N-terminal identification ~~peptide~~ sequence or a sequence imparting a desired characteristic; and the nucleic acid comprises (i) a ~~sequence~~ nucleic acid isolated from a wild type ~~[[an]]~~ *E. coli* bacterium; (ii) a non-natural or synthetic form of the nucleic acid of (i); or (iii) a nucleic acid encoding a polypeptide having the amino acid sequence of SEQ ID NO:10; and

(b) expressing the nucleic acid in a yeast cell under conditions which allow expression of the recombinant phytase in the yeast cell.

Claim 56 (currently amended): The method of claim 55, wherein the homologous signal sequence or the heterologous signal sequence (~~signal-peptide~~) comprises a secretory signal ~~peptide~~ sequence.

Claim 57 (previously presented): The method of claim 1, wherein the nucleic acid wherein the nucleic acid is contained in a vector.

Claim 58 (previously presented): The method of claim 57, wherein the vector comprises at least a portion of a nucleotide sequence taken from a cloning vector, an expression vector, a bacterial vector, a plasmid, a viral particle, a phage, chromosomal DNA, nonchromosomal DNA, synthetic DNA, a vaccinia vector, an adenovirus vector, a fowl pox virus, a pseudorabies vector or a combination of nucleotide sequences thereof.

Claim 59 (previously presented): The method of claim 51, wherein the promoter is a constitutive yeast promoter or an inducible yeast promoter.

Claim 60 (previously presented): The method of claim 59, wherein the constitutive yeast promoter is an ADH promoter or a LEU2 promoter or the inducible yeast promoter comprises a GAL promoter.

Claim 61 (previously presented): The method of claim 51, wherein the yeast cell is a *Saccharomyces cerevisiae*, a *Schizosaccharomyces pombe*, a *Schwanniomyces occidentalis*, a *Pichia pastoris* or a *Hansenula polymorpha*.

Claim 62 (previously presented): The method of claim 53, wherein the yeast cell is a *Saccharomyces cerevisiae*, a *Schizosaccharomyces pombe*, a *Schwanniomyces occidentalis*, a *Pichia pastoris* or a *Hansenula polymorpha*.

Claim 63 (currently amended): The method of claim 51, wherein the phytase-encoding nucleic acid encoding the amino acid sequence of SEQ ID NO:10 comprises ~~isolated from an *E. coli* bacteria~~ is modified to have the sequence of SEQ ID NO:9, ~~or is modified to encode the polypeptide having the amino acid sequence of SEQ ID NO:10.~~

Claim 64 (currently amended): The method of claim 55, wherein the phytase-encoding nucleic acid encoding the amino acid sequence of SEQ ID NO:10 comprises ~~isolated from an *E. coli* bacteria~~ is modified to have the sequence of SEQ ID NO:9, ~~or is modified to encode the polypeptide having the amino acid sequence of SEQ ID NO:10.~~

Claim 65 (currently amended): The method of claim 55, wherein the phytase-encoding nucleic acid encoding the amino acid sequence of SEQ ID NO:10 has the sequence of SEQ ID NO:9, or the sequence of (i) encodes the amino acid sequence of SEQ ID NO:10, ~~or~~ has the sequence of SEQ ID NO:1, or encodes the amino acid sequence of SEQ ID NO:2.

Claim 66 (currently amended): A method for making a recombinant phytase comprising:

(a) providing a nucleic acid comprising:

(A) (i) a phytase-encoding nucleic acid isolated from a wild type *E. coli* bacterium and operatively linked to a promoter, (ii) a non-natural or synthetic form of the nucleic acid of (i); or (iii) a nucleic acid encoding a polypeptide having the amino acid sequence of SEQ ID NO:10,

wherein the phytase-encoding nucleic acid encodes (*[A]*a) a phytase comprising (*(A)*) a homologous signal sequence, (*[B]*b) a phytase lacking a homologous signal sequence, (*[C]*c) a phytase comprising a heterologous signal sequence in place of the homologous signal sequence, or, (*[D]*d) the ~~phytase~~ ~~phytase-encoding nucleic acid~~ of (*[A]* a), (*[B]* b), or (*[C]* c), further comprising a ~~sequence encoding a~~ coding and/or non-coding sequence or a sequence encoding an amino acid sequence comprising an N-terminal identification ~~peptide~~ sequence or a sequence imparting a desired characteristic; or

(B) *[(ii)]* a sequence fully complementary to (i); and

(b) expressing the nucleic acid of (a) in a yeast cell under conditions which allow its expression in the yeast cell.

Claim 67 (currently amended): The method of claim 66, wherein the phytase-encoding nucleic acid encoding the amino acid sequence of SEQ ID NO:10 comprises ~~isolated from an *E. coli* bacteria is modified to have the sequence of SEQ ID NO:9, or is modified to encode the polypeptide having the amino acid sequence of SEQ ID NO:10.~~

Claim 68 (currently amended): The method of claim 66, wherein the phytase-encoding nucleic acid encoding the amino acid sequence of SEQ ID NO:10 has the sequence of SEQ ID NO:9, or the sequence of (i) encodes the amino acid sequence of SEQ ID NO:10, or has the sequence of SEQ ID NO:1, or encodes the amino acid sequence of SEQ ID NO:2.

Claim 69 (new): The method of claim 1, wherein the nucleic acid encoding a polypeptide having the amino acid sequence of SEQ ID NO:10 is made by a method comprising starting with a

wild-type nucleic acid and modifying it to the nucleic acid encoding SEQ ID NO:10, or, modifying it to SEQ ID NO:9.

Claim 70 (new): The method of claim 51, wherein the nucleic acid encoding a polypeptide having the amino acid sequence of SEQ ID NO:10 is made by a method comprising starting with a wild-type nucleic acid and modifying it to the nucleic acid encoding SEQ ID NO:10, or, modifying it to SEQ ID NO:9.

Claim 71 (new): The method of claim 53, wherein the nucleic acid encoding a polypeptide having the amino acid sequence of SEQ ID NO:10 is made by a method comprising starting with a wild-type nucleic acid and modifying it to the nucleic acid encoding SEQ ID NO:10, or, modifying it to SEQ ID NO:9.

Claim 72 (new): The method of claim 55, wherein the nucleic acid encoding a polypeptide having the amino acid sequence of SEQ ID NO:10 is made by a method comprising starting with a wild-type nucleic acid and modifying it to the nucleic acid encoding SEQ ID NO:10, or, modifying it to SEQ ID NO:9.

Claim 73 (new): The method of claim 66, wherein the nucleic acid encoding a polypeptide having the amino acid sequence of SEQ ID NO:10 is made by a method comprising starting with a wild-type nucleic acid and modifying it to the nucleic acid encoding SEQ ID NO:10, or, modifying it to SEQ ID NO:9.